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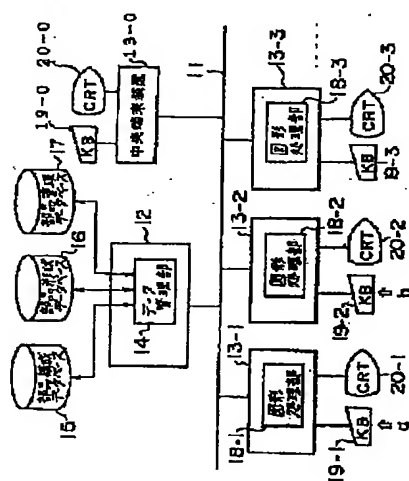
(54)【発明の名称】 CADシステムにおけるチーム形式の設計方法

(57)【要約】

【目的】 CADシステムでチーム形式の設計を行うに際し、各設計者が関連する他の部品の最新情報を参照しつつ設計を行うことができるようにする。

【構成】 部品形状データベース16には部品の部品形状データを格納し、部品管理データベース17には各部品ごとにその部品を設計・修正している設計者とその部品を参照している設計者等を登録しておく。データ端末装置13-1、13-2、……には設計者a、b、……が割り当てられ、各自担当する部品の設計を行うことにより全体設計を同時並行して行う。ある設計者(例えばb)が自己の担当する部品の修正を行うと、その修正内容が部品形状データベース16に反映されるとともに、その部品を参照中の設計者(a)のデータ端末装置13-2に対し、その旨及び修正内容が通知される。これにより、設計者aのディスプレイ装置20-1に部品bの最新の形状が表示され、これを参照して部品aの設計を行うことができる。

【図1】



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【特許請求の範囲】

【請求項1】 設計する部品の部品形状データを格納する部品形状データベースと、部品設計のためのデータ処理を行う複数のデータ処理装置とを有し、複数の設計者が前記各データ処理装置を用いそれぞれ割り当てられた部品の設計を行うことにより全体設計を並行して行うチーム形式のCADシステムにおいて、各部品ごとに、現在その部品を設計・修正している設計者を示すデータと、その部品を参照している設計者を示すデータとを登録しておき、いずれかの設計者がデータ処理装置により自己の担当する部品の修正を行ったとき、その修正の内容を前記部品形状データベース内の該当する部品形状データに反映させるとともに、その部品を参照している他の設計者のデータ処理装置に対して、その部品が修正された旨とその修正内容とを通知することを特徴とするCADシステムにおけるチーム形式の設計方法。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明はCADシステムに係わり、特に構成部品を複数の設計者に割り当てて並行して設計を行うチーム形式の設計方法に関する。

【0002】

【従来の技術】従来、例えば自動車の設計のように、設計対象が大型で多数の部品からなるものを設計する場合には、等倍大の設計図面上に設計者を複数配置して設計を行うチーム形式の手法が採用されていた。この手法においては、例えば、各設計者は隣接する他の部品を参照しながら、干渉、隙間等を考慮し、かつ他の部品が修正されたならば、その部分に関係する箇所においては逐次設計者が確認しつつ、自分の担当分の設計を行っていた。従って、このような設計手法では、設計者間のコミュニケーションは比較的良好であった。

【0003】このような伝統的な手法に対し、近年のいわゆるCAD (Computer Aided Design)システムの急速な普及に伴い、部品構成を木構造で表現し複数の設計者がそれぞれの端末装置により各部品を同時に並行して設計するいわゆるチーム形式のCADシステムが導入され、設計の効率化や設計期間の短縮化が図られている。このチーム形式のCADシステムにおいては、1つの部品に対して複数の作業者が重複修正を行うのを防止する必要がある。このため、従来は、例えば特開平2-48774号公報に示されているように、誰がいつ修正したかを示す修正情報を管理して設計作業の進行の円滑を図ることが行われている。

【0004】また、各設計者は、自己の担当する部品設計に際して他の設計者の担当する部品との干渉を考慮する必要があるため、自己のディスプレイ装置に適宜必要な部品を表示させてこれを参照することができるようになっている。

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【0005】

【発明が解決しようとする課題】しかしながら、上記した従来のCADシステムにおいては、例えばある設計者aが他の部品Xを参照している最中に、その部品Xの設計担当者bが部品Xを修正した場合には、その修正内容が設計者aに通知されるようにはなっていなかったため、各設計者は参照している他の部品の最新形状をリアルタイムで知ることができなかった。

【0006】従って、上記したCADシステム導入以前のチーム形式の設計手法に比べて、設計者間でのコミュニケーションが却って悪化することとなり、各設計者レベルでの設計所要時間は短縮できるものの、全体として設計の効率化・高品質化を図ることができないという問題が生じていた。

【0007】この発明は、係る課題を解決するためになされたもので、各設計者が関連する他の部品の最新情報を参照しつつ設計を行うことができるCADシステムにおけるチーム形式の設計方法を得ることを目的とする。

【0008】

【課題を解決するための手段】この発明に係るCADシステムにおけるチーム形式の設計方法は、設計する部品の部品形状データを格納する部品形状データベースと、部品設計のためのデータ処理を行う複数のデータ処理装置とを有し、複数の設計者が各データ処理装置を用いそれぞれ割り当てられた部品の設計を行うことにより全体設計を並行して行うチーム形式のCADシステムにおいて、各部品ごとに、現在その部品を設計・修正している設計者を示すデータと、その部品を参照している設計者を示すデータとを登録しておき、いずれかの設計者がデータ処理装置により自己の担当する部品の修正を行ったとき、その修正の内容を部品形状データベース内の該当する部品形状データに反映させるとともに、その部品を参照している他の設計者のデータ処理装置に対して、その部品が修正された旨とその修正内容とを通知するものである。

【0009】

【作用】この発明に係るCADシステムにおけるチーム形式の設計方法では、いずれかの部品について修正が行われた場合には、その部品を参照している他の設計者に対して修正の事実と修正内容が通知されることとなる。

【0010】

【実施例】以下実施例に基づき本発明を詳細に説明する。

【0011】図1は本発明の一実施例におけるチーム形式の設計方法を応用したCADシステムを表わしたものである。このシステムには、中央処理装置12、中央端末装置13-0、及び複数のデータ端末装置13-1、13-2、……が設けられ、ネットワーク11により相互に接続されている。中央処理装置12にはデータ管理部14が備えられ、部品構成データベース15、部品形

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状データベース16、及び部品管理データベース17のデータ管理を行うようになっている。

【0012】また、データ端末装置13-1には、それぞれ図形処理部18-1が備えられ、キーボード(KB)19-1やマウス(図示せず)からの入力操作に応じて所定の図形作成・編集処理を行い、その結果をディスプレイ装置(CRT)20-1に表示するようになっている。その他のデータ端末装置13-2等についても同様の構成となっている。各設計者は、これらのデータ端末装置を使用して設計を同時に並行して行うことができるようになっている。

【0013】中央端末装置13-0には、大型のディスプレイ装置20-0が備えられ、キーボード19-0からの操作により各データ端末装置での修正内容を全体的に確認できるようになっている。

【0014】これにより、設計チームリーダーは、各設計者の作業速度及び全体の設計状況を容易に把握できる。

【0015】部品構成データベース15は、設計対象の製品等の部品構成を木構造で表現したものであり、例えば図2に示すように、「ある部品アセンブリAは部品X、Y、Zから構成される」という木構造で表現されている。

【0016】部品形状データベース16は、部品構成データベース15に登録された各部品の形状・寸法等のデータから構成される。

【0017】部品管理データベース17は、各部品ごとに、その部品データの修正または参照を行っている設計者を管理するためのデータベースであり、例えば図3に示すような構成となっている。この図は、図2に示した部品構成の場合について表したもので、例えば部品Xには、修正設計者としてa、参照設計者としてbが登録されている。これにより、部品Xは設計者aにより修正中であると同時に、設計者bにより参照されていることが判る。なお、この部品管理データベース17には、例えば部品Zの場合のように、複数の参照設計者a、bを登録することができるようになっている。

【0018】以上のような構成のCADシステムの動作を図4とともに説明する。ここでは、データ端末装置13-1の設計者aとデータ端末装置13-2の設計者bが、それぞれ自己の担当する部品X、Yの設計に際して部品Y、Xを相互に参照する場合を想定して説明する。

【0019】まず、設計者aが、データ端末装置13-1のキーボード19-1から、部品Yを参照して部品Xを設計する旨の宣言のコマンドを入力すると、このデータ端末装置内の図示しない通信制御部は、この宣言の内容をネットワーク11を介して中央処理装置12のデータ管理部14に通知する(ステップS101)。

【0020】これを受けた中央処理装置12のデータ管理部14は、宣言の内容を部品管理データベース17に登録する(ステップS102)。これにより、部品管理

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データベース17には、部品Xの修正設計者の欄と部品Yの参照設計者の欄に“設計者a”が登録される。なお、設計者を表示するための情報としては、例えばデータ端末装置自体のID(識別)コード等を用いることが好適である。

【0021】次に、データ管理部14は、部品形状データベース16から部品X、Yの形状データを読み出してデータ端末装置13-1に転送する(ステップS103)。これを受けたデータ端末装置13-1の図形処理部18-1は、部品X、Yの形状・寸法等をディスプレイ装置20-1に表示する(ステップS104)。このとき、ディスプレイ装置20-1には、修正対象の部品Xと参照部品Yが実際の組付け状態で異色表示され、相互の干渉状態を容易にチェックできる。

【0022】一方、設計者bが、データ端末装置13-2のキーボード19-2から部品Xを参照して部品Yを設計する旨の宣言のコマンドを入力すると、このデータ端末装置内の図示しない通信制御部は、この宣言の内容をネットワーク11を介して中央処理装置12のデータ管理部14に通知する(ステップS105)。

【0023】これを受けた中央処理装置12のデータ管理部14は、宣言の内容を部品管理データベース17に登録する(ステップS106)。これにより、部品管理データベース17には、部品Yの修正設計者の欄と部品Xの参照設計者の欄に“設計者b”が登録される。

【0024】次に、データ管理部14は、部品形状データベース16から部品Y、Xの形状データを読み出してデータ端末装置13-2に転送する(ステップS107)。これを受けたデータ端末装置13-2の図形処理部18-2は、部品Y、Xの形状・寸法等をディスプレイ装置20-2に表示する(ステップS108)。この場合も上記と同様に、修正対象の部品である部品Yと参照部品である部品Xは異なった色で表示される。

【0025】この時点で、例えば設計者bが、キーボード19-2またはマウスにより部品Yの形状変更等の修正を行ったとすると、その修正の内容がデータ管理部14に通知される(ステップS109)。これを受けたデータ管理部14は、部品形状データベース16内の該当する部品Yの形状データを更新するとともに(ステップS110)、部品管理データベース17を検索して部品Yを参照している設計者として“設計者a”を抽出する(ステップS111)。そして、データ管理部14は、“設計者a”の使用しているデータ端末装置13-1に対して、部品Yの形状データが更新された旨を通知するとともに、その修正を加味した最新データを転送する(ステップS112)。これを受けたデータ端末装置13-1の図形処理部18-1は、部品Yの最新形状をディスプレイ装置20-1に表示する(ステップS113)。これにより、設計者aは自己の担当する部品Xの設計を、部品Yの最新形状を参照しながら行うことがで

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きる。

【0026】このように本実施例では、データ管理部と図形処理部を別々の処理装置に分散しこれらをネットワークで接続したので、遠隔地間の設計者同士であっても、コミュニケーションを良好に維持しつつチーム形式の設計を行うことができる。

【0027】また、このようなネットワークによる装置構成でなく、例えば図5に示すように、大型のメインコンピュータ21内にデータ管理部14と複数の図形処理部18-1、18-2、……を設けて、設計に必要な図形処理及び上記データ管理を一括して行うようにしてもよい。この図で、第1の実施例(図1)と同部分には同一の符号を付しているが、各部の機能、動作も図1の対応部分と同様であるので説明を省略する。

【0028】なお、これらの実施例では、部品の修正を行うことにその旨及び修正内容を逐一参照設計者に通知することとしたが、例えば試行錯誤的に形状を変更するような場合にまで逐一通知するのは混乱を招く場合もあるので、定期的あるいは所定の修正分量単位ごとに通知するようにしてもよい。

【0029】

【発明の効果】以上説明したように、本発明によれば、いずれかの部品について修正が行われた場合に、その部品を参照している他の設計者に対して修正の事実と修正*

*内容が通知されるため、設計者は必要な部品の最新の状態を相互に参照しつつ設計を進めることができる。従って、設計者間のコミュニケーションが円滑となり、設計工程全体の期間短縮と設計品質の向上を図ることができるという効果がある。

【図面の簡単な説明】

【図1】本発明の一実施例におけるチーム形式の設計方法を応用したCADシステムを示すブロック図である。

【図2】図1における部品構成データベースのデータ構造を示す説明図である。

【図3】図1における部品管理データベースの内容の一例を示す説明図である。

【図4】このCADシステムの動作を説明するための流れ図である。

【図5】チーム形式の設計方法を応用したCADシステムの他の実施例を示すブロック図である。

【符号の説明】

11 ネットワーク

14 データ管理部

20 18-1, 18-2, …… 図形処理部

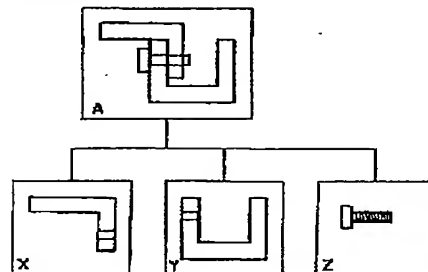
15 部品構成データベース

16 部品形状データベース

17 部品管理データベース

【図2】

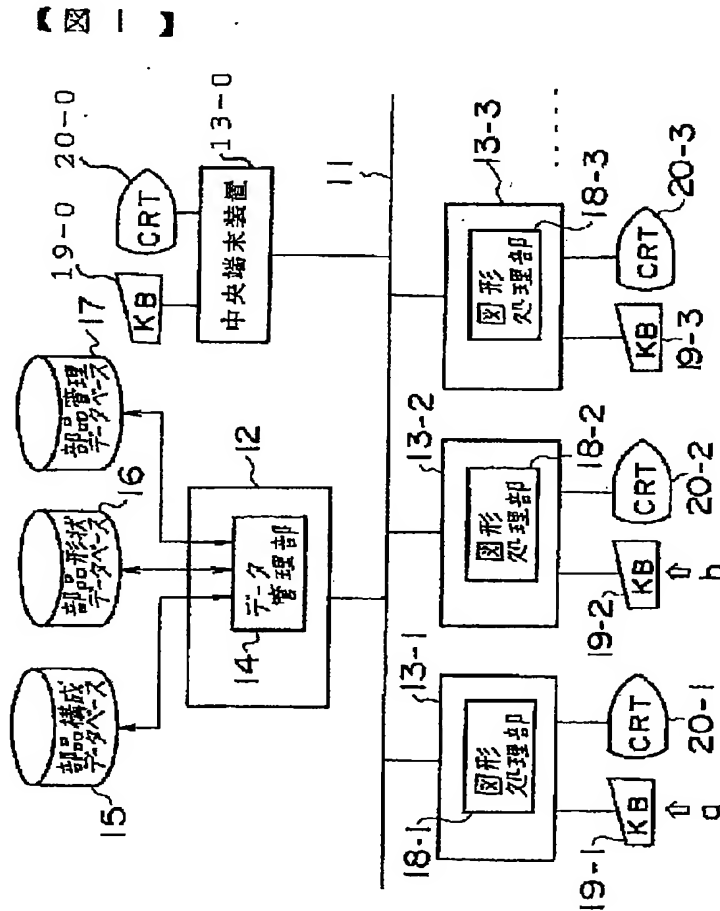
【図2】



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【図1】



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【図3】

【図 3】

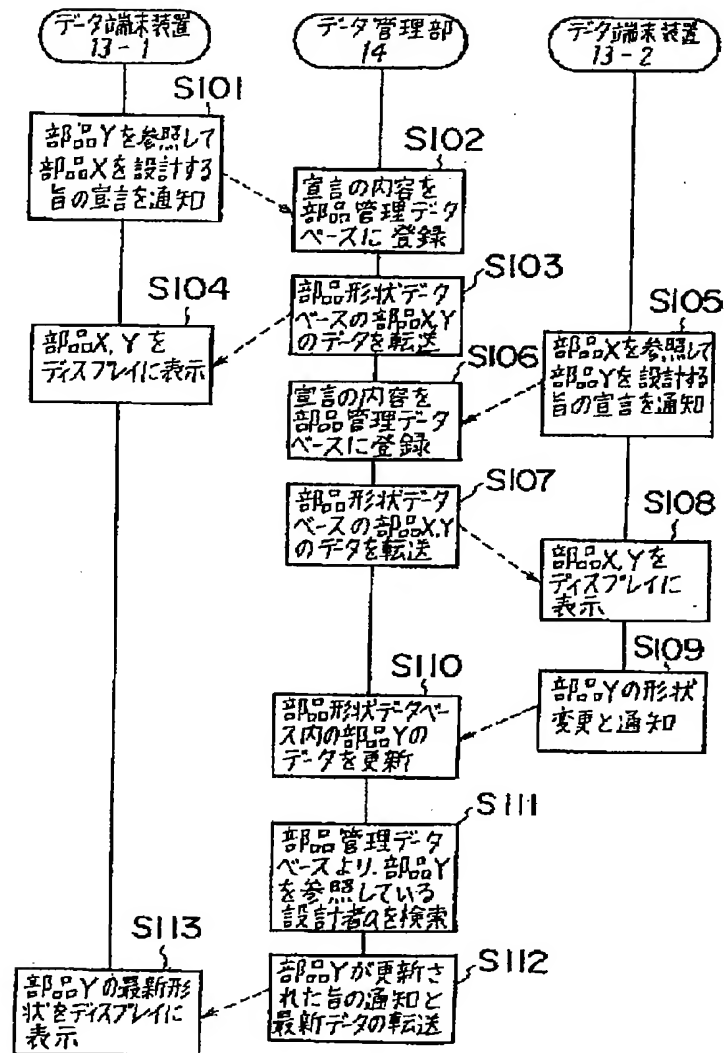
部品名	修正 設計者	参照 設計者(1)	参照 設計者(2)
X	a	b	
Y	b	a	
Z	c	a	b
⋮	⋮	⋮	⋮	

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【図4】

【図4】

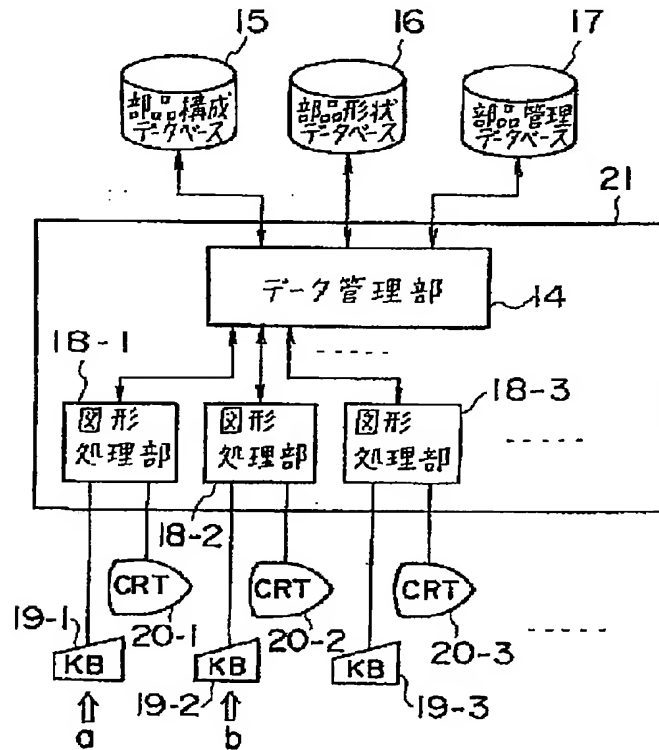


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【図5】

【図5】



PATENT ABSTRACTS OF JAPAN

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(21)Application number : 04-041727 (71)Applicant : TOYOTA MOTOR CORP

(22)Date of filing : 27.02.1992 (72)Inventor : ARAKI HIROMI

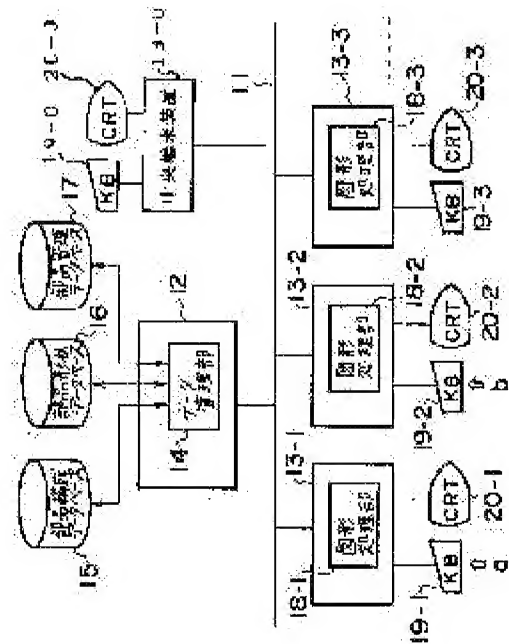
(54) DESIGNING METHOD IN TEAM FORM IN CAD SYSTEM

(57)Abstract:

PURPOSE: To enable each designer to design in the team form by the CAD system while referring to the latest information on other relative components.

CONSTITUTION: A component shape data base 16 stores component shape data on components and a component control data base 17 stores designers who design and correct components and designer who refer to the components in component units. The designers (a), (b)... are assigned to data terminal devices 13-1, 13-2... and design their allotted components to design the whole body simultaneously in parallel. When one designer (e.g. (b)) corrects the component that he takes charge of, the correction contents are reflected on the component data base 16 and the data terminal device

13-2 of the designer (a) who is referring to the component is informed of that and the correction contents. Consequently, the latest shape of the component (b) is displayed on the display device 20-1 of the designer (a) and referenced to design the component (a).



LEGAL STATUS

[Date of request for examination] 25.01.1999

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rejection]

[Kind of final disposal of application other than
the examiner's decision of rejection or
application converted registration]

[Date of final disposal for application]

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decision of rejection] 2001-19536

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CLAIMS

[Claim(s)]

[Claim 1] The part-shape database which stores the part-shape data of the components to design, It has two or more data processors which perform data processing for a components design. In the CAD system of a team format which performs a whole design in parallel when two or more architects design the components assigned using said each data processor, respectively When the data in which the architect who is designing and correcting the component now is shown, and the data in which the architect who is referring to the component is shown are registered for every each part article and one of architects corrects the self components which it takes charge of with a data processor, While making the content of the correction reflect in the part-shape data with which it corresponds in said part-shape database The design approach of the team format in the CAD system characterized by notifying the purport by which the component was corrected, and its content of correction to the data processor of other architects who are referring to the component.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the CAD system adapting the design approach of the team format in one example of this invention.

[Drawing 2] It is the explanatory view showing the DS of the bill-of-materials database in drawing 1 .

[Drawing 3] It is the explanatory view showing an example of ***** of the parts control database in drawing 1 .

[Drawing 4] It is a flow chart for explaining actuation of this CAD system.

[Drawing 5] It is the block diagram showing other examples of the CAD system adapting the design approach of a team format.

[Description of Notations]

11 Network

14 Data Control Section

18-1, 18-2, Graphics-processing section

15 Bill-of-Materials Database

16 Part-Shape Database

17 Parts Control Database

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] Especially this invention relates to the design approach of the team format of assigning two or more architects a component part, and designing in parallel, with respect to a CAD system.

[0002]

[Description of the Prior Art] Like the design of the former, for example, an automobile, the object for a design was large-sized, and when what consists of many components was designed, the technique of the team format of designing by stationing two or more architects was adopted on the engineering-drawing side of actual size size. In this technique, the architect was designing his taken charge part, for example, checking each architect serially in the part related to that part, if interference, a clearance, etc. were taken into consideration and other components were corrected referring to other adjoining components. Therefore, by such design technique, the communication between architects was comparatively good.

[0003] The so-called CAD system of the team format that express a bill of materials by the tree structure, and two or more architects design each part article in parallel simultaneously with each terminal unit is introduced to such traditional technique with the so-called rapid spread of CAD (Computer Aided Design) systems in recent years, and increase in efficiency of a design and shortening of a design period are attained. In the CAD system of this team format, it is necessary to prevent that two or more operators make duplication correction to one component. For this reason, managing the fix information text which shows who corrected when, and planning **** of progress of a design conventionally, as shown in JP,2-48774,A is performed.

[0004] Moreover, since each architect needs to take into consideration interference with the components which other architects take charge of on the occasion of the components design which self takes charge of, he can display components suitably required for a self display unit, and can refer to this.

[0005]

[Problem(s) to be Solved by the Invention] However, in the above-mentioned conventional CAD system, since Architect a was notified of the content of correction when the design person in charge b of the component X corrects Components X to the midst to which a certain architect a is referring to other components X, for example, each architect was not able to know the newest configuration of other components currently referred to on real time.

[0006] Therefore, although communication between architects will get worse on the contrary and the design duration in each architect level could be shortened compared with the design technique of the team format before the above-mentioned CAD system installation, the problem that increase in efficiency and quality improvement of a design could not be attained as a whole had arisen.

[0007] This invention was made in order to solve the starting technical problem, and it aims at acquiring the design approach of the team format in the CAD system which can design referring to the newest information on other components that each architect is related.

[0008]

[Means for Solving the Problem] The design approach of the team format in the CAD system concerning this invention The part-shape database which stores the part-shape data of the components to design, It has two or more data processors which perform data processing for a components design. In the CAD system of a team format which performs a whole design in parallel when two or more architects design the components assigned using each data processor, respectively When the data in which the architect who is designing and correcting the component now is shown, and the data in which the architect who is referring to the component is shown are registered for every each part article and one of architects corrects the self components which it takes charge of with a data processor, While making the content of the correction reflect in the part-shape data with which it corresponds in a part-shape database, the purport by which the component was corrected, and its content of correction are notified to the data processor of other architects who are referring to the component.

[0009]

[Function] By the design approach of the team format in the CAD system concerning this invention, when correction is made about one of components, the data and the content of correction of correction will be notified to other architects who are referring to that component.

[0010]

[Example] Based on an example, this invention is explained to a detail below.

[0011] Drawing 1 expresses the CAD system adapting the design approach of the team format in one example of this invention. A central processing unit 12, central-terminal equipment 13-0 and two or more Data Terminal Equipments 13-1, 13-2, and are prepared in this system, and the network 11 connects with it mutually. A central processing unit 12 is equipped with the data control section 14, and data control of the bill-of-materials database 15, the part-shape database 16, and the parts control database 17 is performed.

[0012] Moreover, Data Terminal Equipment 13-1 is equipped with the graphics-processing section 18-1, respectively, predetermined graphic form creation / edit processing is performed according to the alter operation from (Keyboard KB) 19-1 or a mouse (not shown), and the result is displayed on a display unit (CRT) 20-1. It has composition with the same said of other Data Terminal Equipment 13-2 grades. Each architect can perform a design now in parallel simultaneously using these Data Terminal Equipments.

[0013] Central-terminal equipment 13-0 is equipped with the large-sized display unit 20-0, and, on the whole, the content of correction in each Data Terminal Equipment can be checked now by actuation from a keyboard 19-0.

[0014] Thereby, a design team leader can grasp easily whenever [working speed / of each architect], and, the whole design situation.

[0015] The bill-of-materials database 15 is expressed by the tree structure "a certain components assembly A consists of components X, Y, and Z", as bills of materials, such as a product for a design, are expressed by the tree structure, for example, it is shown in drawing 2 .

[0016] The part-shape database 16 consists of data, such as a configuration, a dimension, etc. of each part article registered into the bill-of-materials database 15.

[0017] The parts control database 17 is a database for managing the architect who is performing correction or reference of the components data for every each part article, for example, has composition as shown in drawing 3 . This drawing is what was expressed about the case of the bill of materials shown in drawing 2 , for example, b is registered into Components X as a and a reference architect as a correction architect. Thereby, while Components X are under correction by Architect a, it turns out that it is referred to by Architect b. In addition, two or more reference architects a and b can be registered now into this parts control database 17 like [in the case of for example the components Z].

[0018] Actuation of the CAD system of the above configurations is explained with drawing 4 . Here, the architect a of Data Terminal Equipment 13-1 and the architect b of Data Terminal Equipment 13-2 explain Components Y and X supposing the case where it refers to mutually, on the occasion of the self design of the components X and Y which it takes charge of, respectively.

[0019] First, if Architect a inputs the command of declaration of the purport which designs Components

X with reference to Components Y from the keyboard 19-1 of Data Terminal Equipment 13-1, the communications control section which is not illustrated in this Data Terminal Equipment will notify the content of this declaration to the data control section 14 of a central processing unit 12 through a network 11 (step S101).

[0020] The data control section 14 of the carrier beam central processing unit 12 registers the content of declaration into the parts control database 17 for this (step S102). Thereby, "Architect a" is registered into the parts control database 17 by the column of the correction architect of Components X, and the column of the reference architect of Components Y. In addition, as information for displaying an architect, it is suitable to use the ID (discernment) code of the Data Terminal Equipment itself etc., for example.

[0021] Next, the data control section 14 reads the configuration data of Components X and Y from the part-shape database 16, and transmits them to Data Terminal Equipment 13-1 (step S103). The graphics-processing section 18-1 of carrier beam Data Terminal Equipment 13-1 displays this for the configuration, dimension, etc. of Components X and Y on a display unit 20-1 (step S104). At this time, to a display unit 20-1, a unique indication of the components X for correction and the reference components Y is given in the state of actual assembly, and they can check a mutual interference condition easily.

[0022] On the other hand, if the command of declaration of a purport with which Architect b designs Components Y with reference to Components X from the keyboard 19-2 of Data Terminal Equipment 13-2 is inputted, the communications control section which is not illustrated in this Data Terminal Equipment will notify the content of this declaration to the data control section 14 of a central processing unit 12 through a network 11 (step S105).

[0023] The data control section 14 of the carrier beam central processing unit 12 registers the content of declaration into the parts control database 17 for this (step S106). Thereby, "Architect b" is registered into the parts control database 17 by the column of the correction architect of Components Y, and the column of the reference architect of Components X.

[0024] Next, the data control section 14 reads the configuration data of Components Y and X from the part-shape database 16, and transmits them to Data Terminal Equipment 13-2 (step S107). The graphics-processing section 18-2 of carrier beam Data Terminal Equipment 13-2 displays this for the configuration, dimension, etc. of Components Y and X on a display unit 20-2 (step S108). Also in this case, the components Y which are components for correction, and the components X which are reference components are expressed as a different color like the above.

[0025] At this event, supposing for example, the architect b corrects configuration modification of Components Y etc. with a keyboard 19-2 or a mouse, the content of that correction will be notified to the data control section 14 (step S109). The carrier beam data control section 14 extracts "Architect a" as an architect who searches the parts control database 17 and is referring to Components Y while updating the configuration data of the components Y with which this is corresponded in the part-shape database 16 (step S110) (step S111). And the data control section 14 transmits the newest data which considered the correction while notifying the purport by which the configuration data of Components Y were updated to Data Terminal Equipment 13-1 which "Architect a" is using (step S112). The graphics-processing section 18-1 of carrier beam Data Terminal Equipment 13-1 displays the newest configuration of Components Y for this on a display unit 20-1 (step S113). Thereby, Architect a can perform the design of the components X which self takes charge of, referring to the newest configuration of Components Y.

[0026] Thus, in this example, since the data control section and the graphics-processing section were distributed to the separate processor and these were connected in the network, even if it is the architects between remote places, a team format can be designed, maintaining communication good.

[0027] Moreover, as shown in drawing 5 instead of an equipment configuration by such network, the data control section 14, two or more graphics-processing sections 18-1, 18-2, and are prepared in the large-sized main computer 21, and graphics processing required for a design and the above-mentioned data control are put in block, and it may be made to perform them. Although the same sign is given to

the same part as the 1st example (drawing 1) in this drawing, since the function of each part and actuation are the same as that of the corresponding point of drawing 1 , explanation is omitted.

[0028] In addition, since confusion may be caused, you may make it notify notifying in detail for every periodical or predetermined correction daily dose unit, even when changing a configuration by trial and error, for example although [these examples] a reference architect is notified of the content of that and correction in detail, whenever it corrected components.

[0029]

[Effect of the Invention] Since the data and the content of correction of correction are notified to other architects who are referring to the component according to this invention when correction is made about one of components as explained above, an architect can advance a design, referring to the newest condition of required components mutually. Therefore, communication between architects becomes smooth and it is effective in the ability to plan period compaction and the design progression in quality of the whole design process.

[Translation done.]

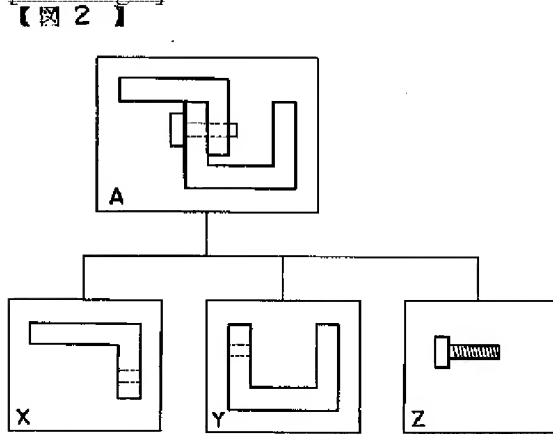
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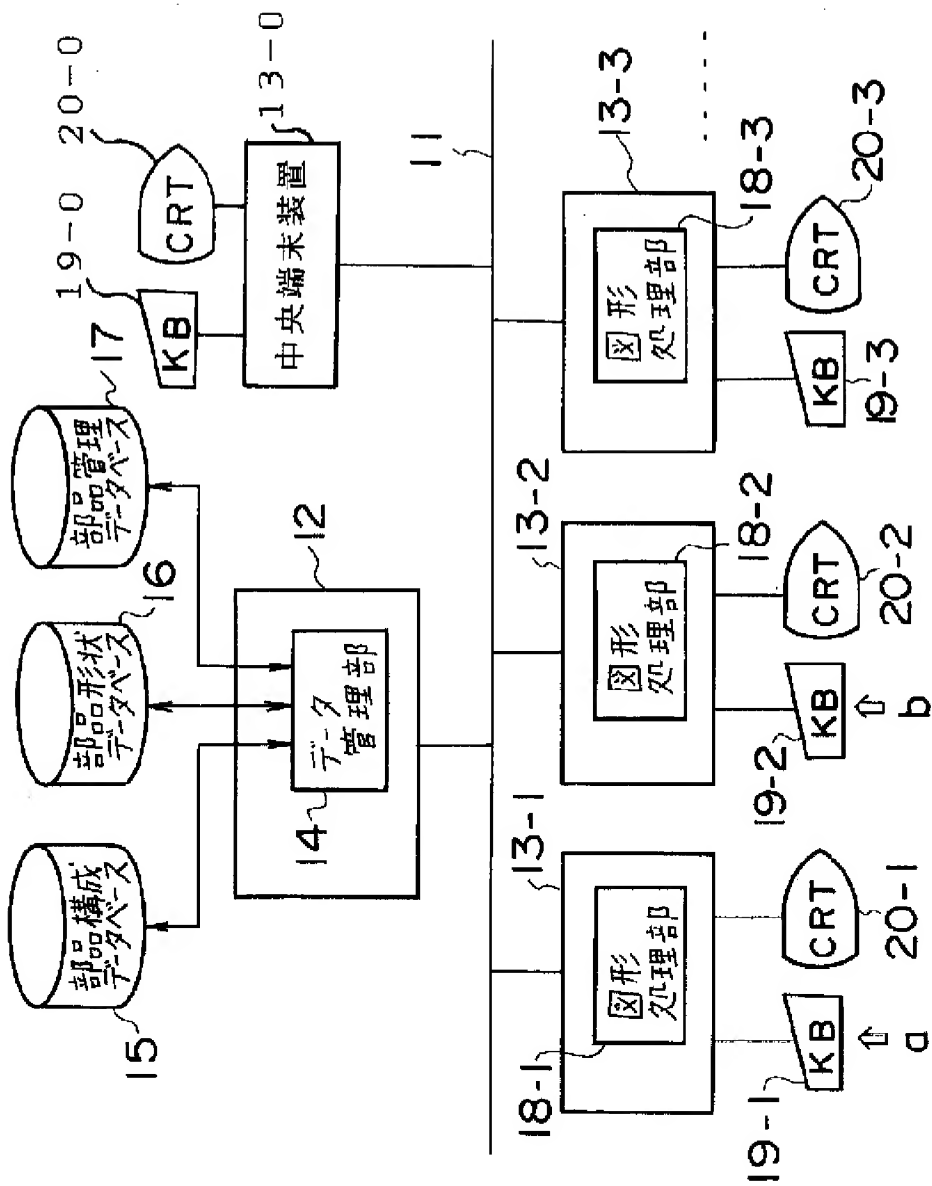
DRAWINGS

[Drawing 2]



[Drawing 1]

【 図 1 】



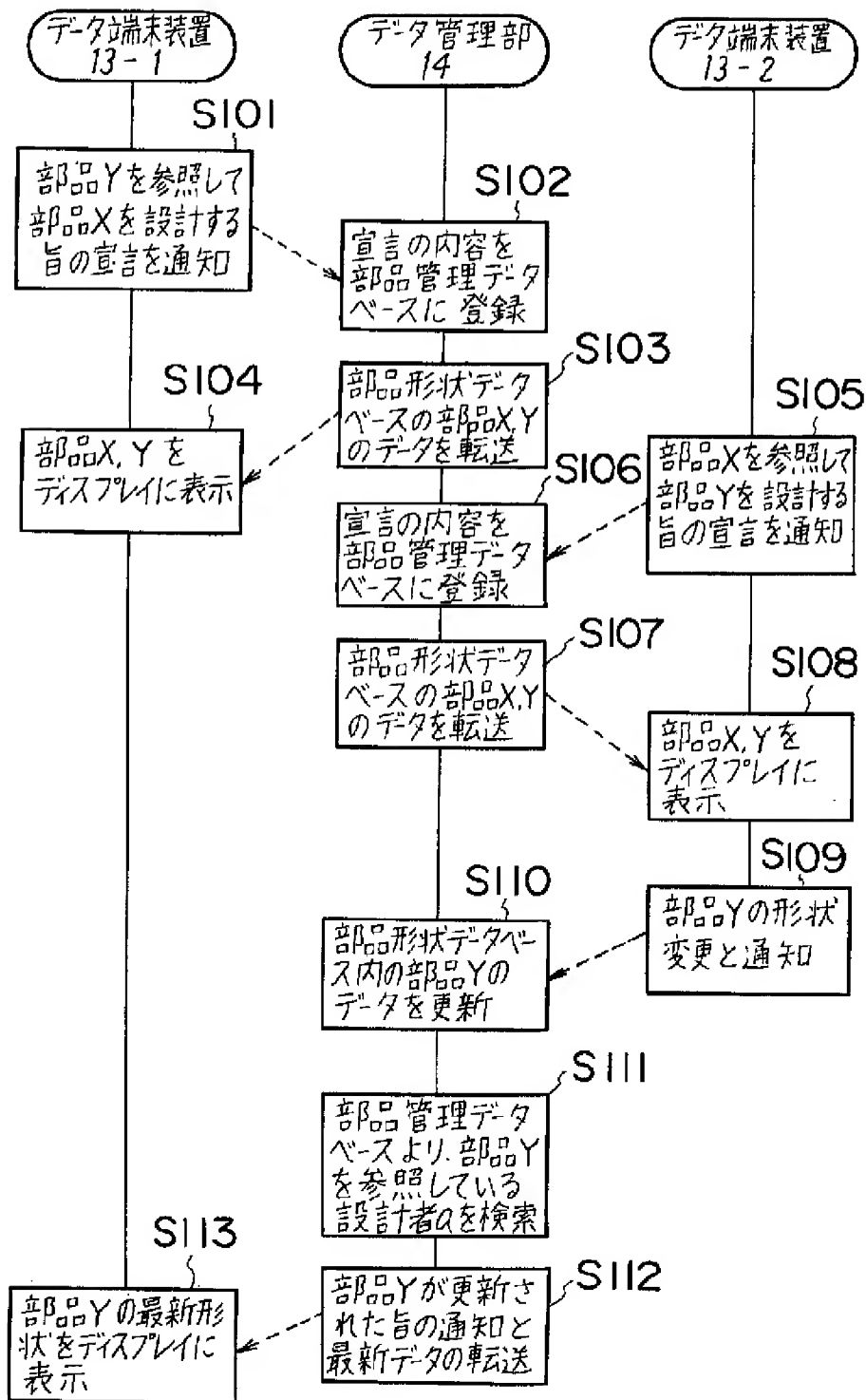
[Drawing 3]

【 図 3 】

部品名	修正 設計者	参照 設計者(1)	参照 設計者(2)	-----
X	a	b		-----
Y	b	a		-----
Z	c	a	b	-----
⋮	⋮	⋮	⋮	

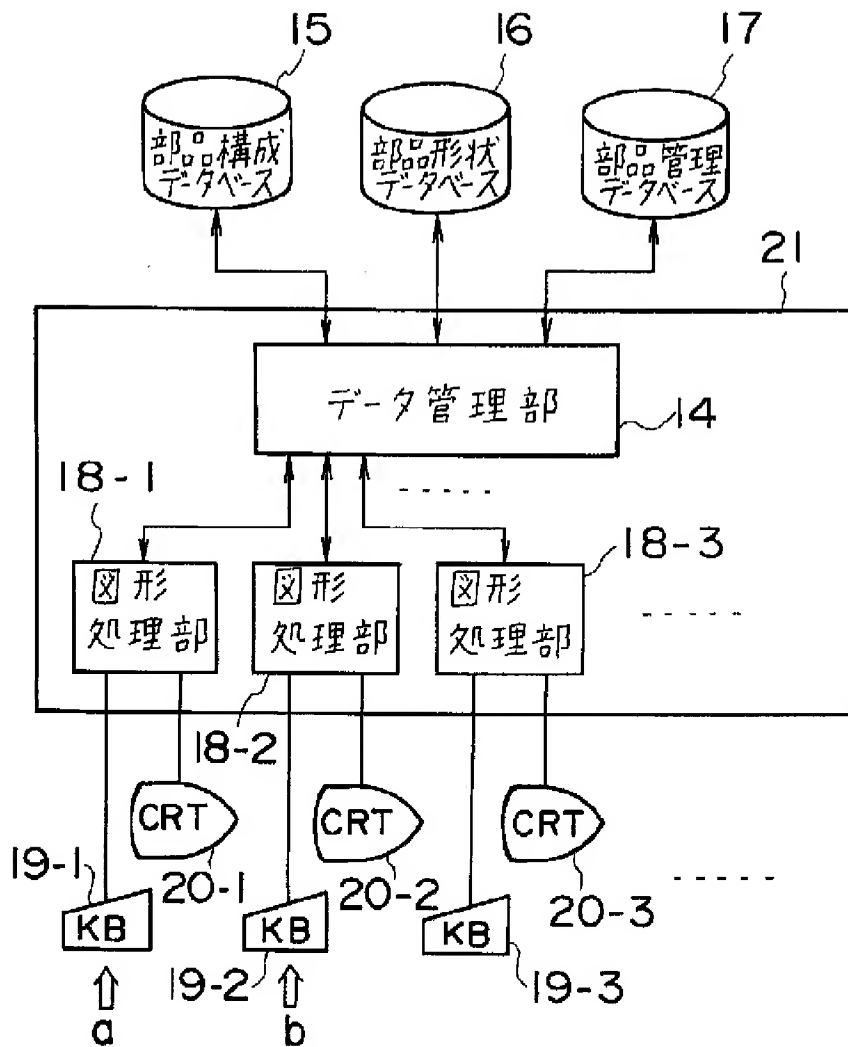
[Drawing 4]

【 図 4 】



[Drawing 5]

【図 5】



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EFFECT OF THE INVENTION

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MEANS

[Means for Solving the Problem] The design approach of the team format in the CAD system concerning this invention The part-shape database which stores the part-shape data of the components to design, It has two or more data processors which perform data processing for a components design. In the CAD system of a team format which performs a whole design in parallel when two or more architects design the components assigned using each data processor, respectively When the data in which the architect who is designing and correcting the component now is shown, and the data in which the architect who is referring to the component is shown are registered for every each part article and one of architects corrects the self components which it takes charge of with a data processor, While making the content of the correction reflect in the part-shape data with which it corresponds in a part-shape database, the purport by which the component was corrected, and its content of correction are notified to the data processor of other architects who are referring to the component.

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OPERATION

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TECHNICAL FIELD

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